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## “Made in Germany” – Produced in America? How Dual Vocational Training Programs Can Help Close the Skills Gap in the United States

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How can dual training  
programs effectively and  
sustainably be imple-  
mented in the U.S.?

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Can the German model  
help the U.S. bridge the  
skills gap?

Two of the strongest education systems and economies worldwide, the United States and Germany, have been among the key sources for models in skill formation emulated globally.<sup>1</sup> Public and private investments in skill formation have increased in both countries. Yet these systems maintain contrasting emphases: general and academic education in the U.S. and specific vocational training, in particular occupations, in Germany. Both countries continue to learn from each other as they compete in global education and labor markets—and continue their extensive bilateral cooperation. While both are meritocratic democracies with federal political structures, the educational institutions of Germany and the United States, especially those of vocational education and training, are quite different.<sup>2</sup> This challenges the direct transfer of educational models.<sup>3</sup> Yet there exists great interest among firms, politicians, and educators in praxis-oriented, workplace-based, occupationally-focused education and training as it has developed over decades in Germany, Switzerland, and Austria. This is because it has become the backbone of robust export-driven economies and protected these societies from the economic crisis and high unemployment rates that the U.S. has recently suffered. Thus, the German model in vocational education and training, especially dual apprenticeship, has been widely discussed, most recently by President Barack Obama in his State of the Union address, in which he envisioned implementing elements of the German dual model to address the skills gap and unemployment in the U.S. economy.

From the point of view of industry, the Advanced Manufacturing Partnership (AMP) Steering Committee 2.0 proposed a number of changes, including “enabling innovation, securing the talent pipeline, and improving the business climate.”<sup>4</sup> In the U.S., apprenticeship training appears to be a useful alternative to the sole focus on higher education because sponsors of registered apprenticeship express great satisfaction with their programs, as it helps them meet demand for skilled workers, raise productivity, and bolster worker morale and pride.<sup>5</sup> Nevertheless, this segment represents only a modest share of education and training overall. The explicit, consistent, and reliable dovetailing of academic education and practical training is represented, according to Department of Labor statistics, by more than 305,000 active apprentices in over 19,000 registered apprenticeship programs in FY 2013, currently earning

wages as they attain the skills needed to succeed.<sup>6</sup> This number could be much higher, not only if we compare it to German numbers, but also if we compare it to U.S. figures of the past, indicating that this model does have high potential to (re)gain strength, especially as manufacturers renew their investments in industrial capacity.

To profit from this interest and investments on the part of business will require reduction of the polarization between the four-year college degree on the one hand, and flexible, largely unsystematic on-the-job practical training, on the other, that characterizes the U.S. education and training landscape. As the norm of college education for all (as a mythical idea, not based on real outcomes) steadily grew, it overshadowed viable

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alternatives, with considerable risks associated with non-attainment. As young adults who do not attain such credentials face high unemployment rates, it is time to revisit these alternatives.

Thus, in this Issue Brief we examine the workplace-based learning model of dual vocational

education and training: apprenticeship as well as the growing segment of “dual studies” at the tertiary level. We discuss the worldwide higher education expansion and companies’ demand for highly-skilled workers. We then compare the factors that hinder—or could facilitate—transfer of this German model to the United States. Attempts to transfer and scale-up the German skill formation model in the U.S. could, we argue, focus on this segment, because it seems more likely to succeed than the traditional, secondary-level apprenticeship, given existing barriers to transfer.<sup>7</sup> We provide examples of successful programs already established by Europe-based companies in collaboration with American community colleges that are functionally equivalent to dual studies. Building on these successes, both bottom-up and top-down initiatives are necessary to facilitate the benefits of “Made in Germany”—produced in America.

### Lessons of Higher Education Expansion: Growth to Limits?

Because of the enormous benefits that accrue to those with higher education attainment and to the societies in which they live, countries around the world have witnessed educational expansion at all levels. This has led to the “massification” of tertiary education and training, with annual growth rates of over 5 percent from 1991 onward and over 100 million people enrolling in tertiary education worldwide by 2000.<sup>8</sup> The ongoing shift from production to services as the key economic sector (“tertiarization”) has major consequences for educa-

tional systems, labor markets, and social stratification. But, continued growth in the proportions of youth and adults participating in diverse higher education institutions has had even more impact as schooling at all levels transforms society.<sup>9</sup> The knowledge that tertiary education credentials provide the best access to high-skilled positions in labor markets has similarly stimulated increased investment. The principle that education in knowledge-intensive economies is valuable as a quintessentially public and private good has become consensus worldwide.

However, even in highly developed countries, skill formation systems often fail to provide sufficient training opportunities or to bring young adults to attain their degrees on time—or at all. While higher education expansion continues at a rapid pace globally, societies continue to struggle with the negative consequences of dropout, of low education, and of mismatch between education and employment.<sup>10</sup> As college fees and graduate debt have risen continuously in the U.S., students and policymakers alike increasingly question the nearly exclusive emphasis on this educational pathway in terms of economic and social benefits. While it continues to be the ideal, there is increasing awareness of and willingness to explore alternative pathways. For Germans and Americans, among the major attractions of workplace-based learning, such as apprenticeship training, is the income earned while attaining certification as well as much improved chances of employment in the training firm. Further, the current rise of dual studies in Germany—and functionally-equivalent programs in the United States described here—shows that employers are increasingly willing to collaborate with higher education institutions to recruit talent, train workers, and upgrade skills.

### Learning from Others? The Diffusion of Skill Formation Models to Meet Global Challenges

Countries have repeatedly implemented new courses of study and reformed their systems, often looking beyond their borders for guidance and inspiration. In continuously attempting to “borrow and lend” from successful foreign models, countries are affected by the exogenous pressures of global ideals and principles in skill formation.<sup>11</sup> For example, hoping to increase both performance and equality, they attempt to increase permeability between sectors and levels of skill formation systems.<sup>12</sup> The international diffusion of concepts such as life-long learning and standards are increasingly specified by international organizations, such as the OECD, via comparative research, benchmarking, and agenda-setting.<sup>13</sup> While expansion since the Second World War can be found everywhere, the worldwide diffusion of expectations, values, and structures in education has not led to convergence, as transnational agenda-setting and rule-making often undergird instead of limit national policies.<sup>14</sup> Institutional change resulting from international ideational and economic pressures as well as normative and regulative European influences may well be consistent with national cultural and structural characteristics. Or their

interpretation may be culturally specific or used as a tool to legitimate domestic reform agendas. Endogenous pressure includes the fact that more and more people invest in higher education in countries throughout the world, usually in long ago institutionalized organizational fields and forms instead of new ones. Yet worldwide economic changes demand responses from all skill formation institutions—in terms of provision of general, abstract and occupational, tacit skills—and thereby affecting vocational, tertiary, and continuing education.

The challenges of transferring education and training policies and organizational forms across cultural and political boundaries are well known due to significant differences in institutional dimensions, from ideas, worldviews, and values to standards and norms to regulations and political structures. In American vocational education and training, the labor market and on-the-job learning are paramount, rather than the state or collaborations between business and labor. Overarching standards are generally lacking given the tremendous diversity in provision of vocational education and training. German vocational training, which exhibits considerable dialogue and consensus-building between firms, the state, and other interest groups such as labor unions, may be a hardly attainable ideal for the United States due to the different environments in which these systems are embedded. Yet if some elements of institutional infrastructure to best accommodate the German dual model of vocational education and training are lacking in the U.S., such barriers have not eliminated the most important precondition for transfer, namely, substantial interest in the German model of skill formation that has endured for over a century.<sup>15</sup> In fact, in the contemporary era, myriad mechanisms of cross-cultural transfer facilitate the diffusion of ideas, standards, and policies across borders: from migration and educational exchange to continuous, competitive comparison (in such forms as rankings and benchmarking), on-going policy learning, and network-building activities to intergovernmental negotiation and consensus-building (as in the European Union's "open method of coordination").<sup>16</sup> Thus, we revisit the potential of workplace-based learning and dual vocational training to help narrow the skills gap in the U.S.

### Closing the Skills Gap with Workplace-Based Learning

Repeatedly, dual apprenticeship programs have been shown to narrow the skills gap, which describes a situation in which the jobs made available by potential employers and the skills and competences offered by potential employees do not match. But how can dual training programs effectively and sustainably be implemented in the U.S.? Alongside enterprises and educational institutions, policymakers can facilitate needed changes to better accommodate apprenticeship programs. Not only the federal government, but also states and local agencies are crucial, as they often initiate and coordinate the activities necessary to implement apprenticeship programs within regions and at the local level. Actions on multiple levels

are necessary to scaffold such developments, with scaling-up of good practices through awareness-raising and networking.

As employers are asked to do more to invest in skill formation, and they recognize the necessity to do so, firms also face a set of important challenges. If a four-year college education continues to be idealized in the U.S. environment, especially because alternatives are not well known, recruiting talented high school graduates for more practical and hands-on training and jobs becomes more difficult. Thus, more information on alternative pathways and occupational profiles is needed for youth to plan their future careers. Even if firms succeed in recruiting qualified candidates, the lack of institutional support infrastructure in terms of standards and certification procedures makes it difficult to attain a common understanding of different kinds of qualification profiles and skills among all stakeholders. This lack of

transparency is detrimental from a firm standpoint, as companies struggle to assess and evaluate the particular skill sets indicated by certain qualification profiles. There is fear of poaching, a situation in which firms that do not invest in apprenticeship programs themselves

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because they can afford to recruit and offer a wage premium to qualified candidates of other firms. Firms may lose much of the incentive to invest in workforce training programs, as they consider the risk of losing this investment to competitors. Yet this is often exaggerated. Employers who run apprenticeship programs report enormous satisfaction with them: More than four-fifths of employers that sponsor apprentices confirm that the program facilitated their recruitment of skilled, productive workers—"strongly recommending" participation to others.<sup>17</sup> Thus, while there appear to be a variety of collective action problems that are challenging with regard to offering apprenticeships in the U.S., there are reasons for optimism that build on the newest developments in skill formation systems on both sides of the Atlantic. We next discuss the nexus of vocational training and higher education, combining elements to more adequately meet the employers' demand for highly-qualified workers.

The United States remains crucial as an export market and is simultaneously an attractive location to produce manufactured goods, not only for German firms. To ensure this industrial ecosystem grows sustainably, more innovation is needed from companies across the economy.<sup>18</sup> This year, several major German manufacturers have announced key infrastructure development projects to bolster their industrial capacity in the U.S. Yet this interest in the large North American market reaches far down into the group of small and medium-sized



enterprises. Thus, the economic interconnections across the Atlantic are being further strengthened. Yet as the United States recovers from the recent financial and economic crisis, and as an increasing number of manufacturing firms consider setting up or are currently expanding their presence in the country, a problem emerges: the skills gap.

Increasingly, firms seem to be unsuccessful in finding the qualified candidates they need; those with the capabilities and competencies required to work in a technologically advanced twenty-first century manufacturing setting. Paradoxically, there is also a rising number of college graduates struggling to find (well-paid) jobs in their fields. This unemployment and underemployment of college graduates is not only disastrous from a public policy standpoint, but also is exacerbated by the fact that many of these graduates face the challenge of dealing with huge amounts of college debt. Nevertheless, “in this unforgiving economy, successfully completing a post-secondary degree offers young adults the best insurance that they will find work. Among all groups, young adults—aged 25 to 30—who have earned at least an associate’s degree, are significantly more likely to be employed than those who have a high school degree or less.”<sup>19</sup>

The common thread is the mismatch between the kinds of jobs offered and the qualification profiles that job seekers bring to the table. This problem is often described as an “employability” issue or the lack of job-readiness. While there is an important debate regarding the extent to which education should be targeting job-readiness and be aligned with industry needs, as opposed to other goals, such as individual development of the mind and personality or appreciating well-being, it seems that the mismatch between skills available and skills needed is too high from the perspectives of many stakeholders, including policymakers.

One model that developed over decades to help attain a better match between jobs and skills is dual vocational training programs, very common not only in Germany, but also in Switzerland and Austria and a number of other European countries.<sup>20</sup> “Dual” here means that education and training take place not solely within a vocational school, but rather that this

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theoretical training is accompanied by relevant practical training and experience at a partnering company, with the apprentices receiving a salary as they gain work-related skills. Studies repeatedly have argued (and shown) that the U.S. could reap substantial benefits from this model.<sup>21</sup> Yet we know with earlier top-down

policy initiatives that the lasting impact was limited. For example, the School-to-Work Opportunities Act in the 1990s provided dozens of states with funds to design comprehensive school-to-work transition systems that linked academic and vocational education, bridged secondary and postsecondary education, and, by engaging employers, provided learning opportunities in workplaces. Despite the political will and the funds made available, the Act did not meet the high expectations many had for it, with a key lesson being the lack of coordination between governmental programs and firms, which continue to fail to invest sufficiently in their own most valuable resource, namely talented, well-trained, and loyal workers. Efforts are needed from the employers’ side as are connections to public and private providers of education and training.

There are multiple reasons for this only partially successful transfer. First, and perhaps most importantly, the U.S. traditionally has a different kind of skill formation system, compared to countries in which dual apprenticeship programs are well known and relied upon as firms help train and socialize their own qualified workers. Rather than relying on apprenticeship programs, most firms in the U.S. hire young adults to train them in very flexible arrangements largely on the job. Yet, dual vocational education and training programs could be better adapted to the local context of the U.S., as we show below. For example, given the normative dominance of college education in the U.S., dual vocational programs may well need to be integrated with college-level instruction in order to be legitimate in this environment. Thus, dual study programs, at post-secondary level, seems to offer a promising alternative.

## Dual Studies: A Transatlantic Solution

The fastest growing segment of the German skill formation system—that of “dual studies”—has the potential to bolster dual vocational education and training in the U.S. The German model, which includes a variety of solutions to meet societal and economic needs, has recently renewed its appeal on both sides of the Atlantic. One of the major reasons for Germany’s relatively low (but growing steadily) participation rates in tertiary education is the vaunted dual system, which offers an attractive alternative for a large minority of each cohort.<sup>22</sup> The introduction of Bologna process inspired BA programs of three years’ duration (similar to most VET programs), has increased direct competition between the sectors; indeed, the shift to the BA/MA courses of study throughout Europe has also facilitated the creation of a number of newer, often hybrid organizational forms.<sup>23</sup> Tertiary short-cycle courses—understood as short-duration vocational or professional education taken up after secondary schooling—have gained in importance.<sup>24</sup> In many countries, linkages between postsecondary, tertiary short-cycle, and university education are being strengthened.

A growing segment of praxis-oriented post-secondary education that extends the traditional dual apprenticeship system for which Germany is famous, dual studies programs represent a

hybrid combining higher education and apprenticeship-based vocational training and has expanded considerably.<sup>25</sup> As part of the “Made in Germany” skill formation model, dual studies link a post-secondary program of study with the advantages and curricula of dual apprenticeship, which traditionally melded vocational schooling at upper-secondary level and a multi-year apprenticeship contract with a firm. By upgrading the theoretical education component, dual studies programs have grown particularly quickly in regions with strong export-oriented firms and in the fields of engineering and business, such as Baden-Württemberg, which is known to host a unique industrial ecosystem of Mittelstand companies. In fact, German firms in the U.S. have already successfully implemented similar programs in collaboration with community colleges, for example, in the Carolinas and Tennessee.

In Germany, dual studies that combine in-firm training and higher-level general education are becoming more popular because firms expect graduates to have an ideal combination of skills developed in college-level courses and within their organizations. Students earn wages and build their career while attaining a higher education credential. In April 2014, the Federal Institute for Vocational Education and Training (BIBB) in Bonn counted 1,461 dual courses of study, mostly at universities of applied sciences, but also at the Baden-Württemberg Cooperative State University (DHBW) or vocational academies (*Berufsakademien*), providing more than 64,000 opportunities to study, representing growth of nearly 50 percent since 2008.<sup>26</sup> Joining two types of learning and often offering double qualifications, students also receive training in thousands of firms.<sup>27</sup> Educational and economic organizations successfully capitalize on the influence and status of Germany’s combination of firm-based and school-based training. Such hybrid, newer courses of study and organizations have begun to bridge the gaps between sectors as they offer flexible learning pathways and part-time in-firm education.<sup>28</sup>

### Facilitating Factors in Transferring the “Made in Germany” Model to the U.S.

If the German model continues to be attractive and diffuse worldwide not least through strong German industrial companies, the United States already has infrastructure that firms and other organizations can build upon to transmit knowledge within dual courses of study. Most crucial is the nation-wide network of around 1,100 technical and community colleges, often oriented toward and embedded in local labor markets. Offering a broad spectrum of initial training and continuing education courses, these colleges sustain a range of connections and collaboration with local employers. Within this differentiated system, of course, expectations, depth of preparation, and success vary considerably. Some programs are comparable to Germany’s universities of applied sciences (*Fachhochschulen*), while others offer courses more akin to local continuing education schools (*Volkshochschulen*). Many cooperate with firms and offer praxis-oriented programs to

prepare students to enter the labor force. Some cooperative programs provide opportunities to gain practical experience in firms alongside their theoretical course of study. These educational organizations have a strong orientation toward the (local and regional) labor market combined with openness toward employers, two factors facilitating communication and collaboration essential to implement dual study programs. In the other direction, firm representatives often engage themselves in the oversight of these colleges, for example by serving on advisory boards.

Praxis-oriented post-secondary educational programs are already ubiquitous in the U.S. Thousands of organizations have either already established functional equivalents to the German dual study model or would provide a platform to do so. Further key factors that support initiatives to implement the dual study model in the U.S. include decentralization, growing interest in programs at the nexus of vocational education and training and higher education, and thousands of German firms successfully operating in the United States.

In terms of governance, a somewhat paradoxical facilitator may well be the decentralized and highly differentiated educational landscape. When this allows the coexistence of myriad educational pathways, even within states, the U.S. becomes a laboratory to test various programs and combinations of workplace-based learning. The freedom to experiment means organizations can respond to local conditions and needs as well as building upon private and philanthropic interests and initiatives. The dual study model could thus be easily integrated into the diversity of programs aiming to bridge the gap between

schooling and work, ensuring successful transitions. In all regions of the U.S., technical and community colleges offer employers educational services close-by. Already oriented to improving employment opportunities for their graduates, these colleges are natural partners in offering the academic portion of apprenticeships and dual courses of study.

Among the crucial facilitating factors is the abiding interest in such models and the willingness to test them. Due especially to the Great Recession, decision-makers, interest groups, and potential students are acutely aware that a stronger connection between education and training is needed to enhance the matching of skills to employers’ needs as well as to actively close the skills gap. The renewal of industrial manufacturing (re-shoring) provides another strong incentive to invest in such qualifications.<sup>29</sup> Such labor market developments bolster the

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attractiveness of dual studies.

## Inspiring Practices in the U.S.: Twenty-First Century Vocational Education and Training

Over 3,500 German firms currently active in the United States provide a large pool of organizations that function both as consumer and provider of this model, often working with local education providers to train their skilled workers.<sup>30</sup> Many of these firms complain that qualified workers are hard to find, especially in industrial production of the highest quality.<sup>31</sup> In the meantime, ever more firms are taking matters into their own hands to solve this problem—and increasingly they are finding dual models attractive. One example, in Tennessee, is Volkswagen. The automaker in fact built the “Volkswagen Academy” in Chattanooga prior to opening its newest plant there, thus ensuring that employees were well-trained in advance of beginning to produce cars.<sup>32</sup> Large German companies like these are quite successful and vocal about their initiatives to implement dual apprenticeship programs at their U.S. subsidiaries.<sup>33</sup> Their success builds on considerable (financial) resources to create these programs—often in collaboration with local community colleges—and on marketing activities to attract highly qualified students and apprentices. Yet even small or medium-sized companies can successfully take this route. For example, Apprenticeship 2000 is a consortium of mostly small- and medium-sized companies that collaborates with a local community college as each firm individually would not reach the critical size to implement apprenticeships on its own.<sup>34</sup> Colleges require that a certain number of students enroll before they offer the classes for the technical instruction component of dual vocational training programs. If a company recruits only one or two apprentices per year, this is often not feasible. Collaborating with other companies for this purpose seems to be one viable route, even for smaller companies with fewer financial and human resources. But how can these initiatives be supported on a larger scale?

## Outlook: Top-Down and Bottom-Up—Toward Workplace-Based Learning

The discussions held during the “Transatlantic Dialogue of the States, Cities, and Communities: How Are State and Local Leaders Shaping the Future Workforce?” at AICGS on 22-23 May 2014, brought many of the issues raised here to the fore. Despite the challenges noted, the participants remained optimistic about transfer given the many examples of inspiring practice in different states around the country. At the macro level, participants emphasized the need to adopt and adapt a culture that values apprenticeships, shown in the diversity of successful programs. The current interest in workplace-based learning and specific apprenticeship programs is perhaps the most important facilitator of change. At the system level, coordination and cooperation between the education and training providers are crucial, as are attempts to reduce disadvantages faced by those who do not complete their high school or

college studies. At the organizational level, the focus should be not only on multinationals, but also on small and medium-sized enterprises, which often work well in training consortia like Apprenticeship 2000. Individuals need better guidance and mentoring throughout their schooling and especially as they transition into adulthood, including career planning as early as possible.<sup>35</sup> An explicit life course approach emphasizes that investments in skill formation are a long-term effort on the part of both individuals and organizations. The costs of dropout and failed transitions to work are enormous for young adults and society alike.

Cross-cutting issues included the need to develop favorable conditions for workplace-based learning through policymaking and programs that match successful local initiatives and facilitate their scaling-up. Currently, dual vocational education and training programs can and often are built and supported one company at a time, but the challenge is to build on these successes to the systemic level. Effective bottom-up approaches by local collective actors, such as local technical and community colleges, workforce development boards, and firms offer a variety of practical training opportunities to their apprentices—and attractive careers in strong companies. These should be given attention and their lessons spread throughout the country. Governments at all levels are called upon to support such programs. Furthermore, attention to competence development and an output orientation toward completion and attainment are needed instead of looking solely at inputs, such as the hours spent in the classroom. Successful programs often provide value far above their costs, demonstrated by the major investments in such training programs.

While we know from past experience that it seems challenging to directly implement dual study or apprenticeship programs into the existing U.S. vocational education and training landscape, recent developments seem to suggest that it is worth another try. As shown here, a range of companies is already doing so. There is increasing interest in these kinds of programs among U.S. policymakers and efforts on the part of the German government and associations to facilitate transfer, such as the Skills Initiative.<sup>36</sup> On both sides of the Atlantic, firms offer praxis-oriented vocational education to boost their productivity and build company loyalty among workers. Indeed, awareness-raising and marketing of such programs and their myriad benefits must be key to efforts to establish apprenticeships for the twenty-first century throughout the U.S. Those who argue that vocational programs are stigmatizing should remember that nothing discriminates more severely than persistent unemployment. Receiving a living wage while completing your training is especially attractive in the current challenging economic environment. Whether dual study programs or the more traditional dual apprenticeship training programs fit the U.S. environment better, combining top-down approaches and support with sincere and sustained interest by local actors bottom-up seems to be a most promising route forward. The “Made in Germany” model, adapted as it has

been to the U.S. environment, can help close the skills gap and support the renewal of American manufacturing strength and global competitiveness.

## Notes

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1 See, for example, Justin J.W. Powell, "Comparing German and American Models in Skill Formation," *AICGS Transatlantic Perspectives* (June 2009); Andreas Pinkwart, *The New Role of Universities in the Twenty-first Century: Universities as Engines of Innovation and Entrepreneurial Hubs*, AICGS Policy Report 50 (Washington, DC: AICGS, 2012).

2 See, for example, Stephen F. Hamilton, "Germany and the United States in Comparative Perspective," *International Journal of Sociology* 29 (1999): 3-20; Matthias Kreysing, *Berufsausbildung in Deutschland und den USA*, Dissertation, Georg-August-Universität Göttingen, 2003; Kathleen Thelen, *How Institutions Evolve: The Political Economy of Skills in Germany, Britain, the United States, and Japan* (New York: Cambridge University Press, 2004).

3 See Johann Fortwengel, *Practice Transfer across Institutional Distance*, Dissertation, Freie Universität Berlin, 2014; Gregory Jackson and Richard Deeg, "Comparing Capitalisms: Understanding Institutional Diversity and Its Implications for International Business," *Journal of International Business Studies* 39 (2008): 540-561.

4 See Advanced Manufacturing Partnership (AMP) Steering Committee, *Report to the President on Capturing Domestic Competitive Advantage in Advanced Manufacturing* (Washington, DC: AMP, 2012), <<http://www.manufacturing.gov/amp.html>> (2 June 2014).

5 Robert I. Lerman, "Apprenticeship in the United States: Patterns of Governance and Recent Developments," in *Rediscovering Apprenticeship*, ed. F. Rauner & E. Smith (Dordrecht, NL: Springer, 2010), 125-136.

6 Department of Labor Statistics, <[http://www.doleta.gov/OA/data\\_statistics.cfm](http://www.doleta.gov/OA/data_statistics.cfm)> (1 April 2014).

7 See Lukas Graf, Justin J.W. Powell, Johann Fortwengel, and Nadine Bernhard, *Duale Studiengänge im globalen Kontext: Internationalisierungspotential in Deutschland und Transfermöglichkeiten anhand der Beispiele Frankreich, USA, Mexiko, Brasilien und Katar* (Bonn: DAAD, forthcoming 2014); Dieter Euler, *Das duale System in Deutschland – Vorbild für einen Transfer ins Ausland?* (Gütersloh: Bertelsmann Stiftung, 2013).

8 Evan Schofer and John W. Meyer, "The Worldwide Expansion of Higher Education in the Twentieth Century," *American Sociological Review* 70 (2005): 898-920.

9 David P. Baker, *The Schooled Society: The Educational Transformation of Culture* (Stanford, CA: Stanford University Press, 2014).

10 Heike Solga, "Lack of Training," in *Skill Formation*, ed. Karl Ulrich Mayer and Heike Solga (New York: Cambridge University Press, 2008), 173-204.

11 Justin J.W. Powell, Nadine Bernhard, and Lukas Graf, "The Emerging European Model in Skill Formation: Comparing Higher Education and Vocational Training in the Bologna and Copenhagen Processes," *Sociology of Education* 85(3) (2012): 240-258; Gita Steiner-Khamisi and Florian Waldow (eds.), "Policy Borrowing and Lending," *World Yearbook of Education* (London: Routledge, 2012).

12 Nadine Bernhard, *Durch Europäisierung zu mehr Durchlässigkeit? Veränderungsdynamiken des Verhältnisses von beruflicher Bildung zur Hochschulbildung in Deutschland und Frankreich* [More Permeability through Europeanization? Change Dynamics in the Relationship between Vocational and Higher Education in Germany and France], Dissertation, Freie Universität Berlin, 2014.

13 Anja P. Jakobi, *International Organizations and Lifelong Learning* (Basingstoke: Palgrave Macmillan, 2009); John W. Meyer, "World Society, Institutional Theories, and the Actor," *Annual Review of Sociology* 36 (2010): 1-20.

14 Georg Krücken, "Learning the 'New, New Thing': On the Role of Path Dependency in University Structures," *Higher Education* 46(3) (2003): 315-39.

15 Friedrich Schütte, "Die Arbeit am 'Projekt der Moderne': Der berufspädagogische Wissenstransfer zwischen Deutschland und den USA 1906-1998," in *Modernisierung der Berufsbildung in Europa*, ed. Holger Reinisch, Reinhard Bader, and Gerald A. Straka (Wiesbaden: VS, 2001: 173-182).

16 Justin J.W. Powell, *Atlantic Transfer: Models in Vocational Training and Higher Education in Europe and the United States* (Oxford: Oxford University Press, in preparation).

17 Robert I. Lerman, "Training Tomorrow's Workforce," *Research Report* (Washington, DC: Urban Institute, 2009).

18 See Suzanne Berger, "Production in the Innovation Economy Project Overview," MIT, 20 September 2013, <<http://ilp.mit.edu/videodetail.jsp?confid=77&id=897>>.

19 William C. Symonds, Robert B. Schwartz, and Ronald Ferguson, *Pathways to Prosperity: Meeting the Challenge of Preparing Young Americans for the 21st Century* (Cambridge, MA: Harvard Graduate School of Education, 2011): 5.

20 See, e.g., Pepper D. Culpepper and David Finegold (eds.), *The German Skills Machine: Sustaining Comparative Advantage in a Global Economy* (New York: Berghahn Books, 1999); Marius R. Busemeyer and Christine Trampusch (eds.), *The Political Economy of Collective Skill Systems* (Oxford: Oxford University Press, 2012).

21 See, e.g., Robert I. Lerman, "Apprenticeship in the United States: Patterns of Governance and Recent Developments," in *Rediscovering Apprenticeship*, ed. Felix Rauner and Erica Smith (Dordrecht, NL: Springer, 2010).

22 Justin J.W. Powell and Heike Solga, "Why are Higher Education Participation Rates in Germany So Low? Institutional Barriers to Higher Education Expansion," *Journal of Education and Work* 24(1) (2011): 49-68.

23 Justin J.W. Powell and Heike Solga, "Analyzing the Nexus of Higher Education and Vocational Training in Europe: A Comparative-Institutional Framework," *Studies in Higher Education* 35(6) (2010): 705-721.

24 W. Norton Grubb, *Alternatives to Universities: Education Policy Analysis* (Paris: OECD, 2005).

25 Lukas Graf, *The Hybridization of Vocational Training and Higher Education in Austria, Germany and Switzerland* (Opladen/Toronto: Budrich UniPress, 2013), open access: <<http://dx.doi.org/10.3224/86388043>>.

26 BIBB, *Projekt AusbildungPlus, Jahresbericht* (Bonn: Bundesinstitut für Berufsbildung, 2008); BIBB, *AusbildungPlus in Zahlen. Trends und Analysen 2013* (Bonn: Bundesinstitut für Berufsbildung, 2014).

27 See Gerd Busse, *Duales Studium: Betriebliche Ausbildung und Studium* [Dual Studies: In-firm Training and University Studies] (Düsseldorf: Hans-Böckler-Stiftung, 2009).

28 Lukas Graf, *The Hybridization of Vocational Training and Higher Education in Austria, Germany and Switzerland* (Opladen/Toronto: Budrich UniPress, 2013), open access: <<http://dx.doi.org/10.3224/86388043>>; Nadine Bernhard, *Durch Europäisierung zu mehr Durchlässigkeit? Veränderungsdynamiken des Verhältnisses von beruflicher Bildung zur Hochschulbildung in Deutschland und Frankreich*, Dissertation, Freie Universität Berlin, 2014.

29 Donald B. Rosenfield, "Made in the US: Manufacturing moving onshore," *The Boston Globe*, 29 January 2014.

30 In the "Transatlantic Dialogue of the States, Cities, and Communities: How Are State and Local Leaders Shaping the Future Workforce?" at AICGS on 23 May 2014, the participants discussed a number of these good practices. Thanks to all participants for their contributions. See also: Silvia Niedeck, *Marktstudie Vereinigten Staaten von Amerika für den Export beruflicher Aus- und Weiterbildung* (Bonn: iMove/BIBB, 2013), <[http://www.imove-germany.de/cps/rde/xbcr/imove\\_projekt\\_de/d\\_iMOVE\\_Marktstudie\\_USA\\_2013\\_sicher.pdf](http://www.imove-germany.de/cps/rde/xbcr/imove_projekt_de/d_iMOVE_Marktstudie_USA_2013_sicher.pdf)>; Volker Rein, "Pathways to Prosperity – Entwicklungen des Work Based Learning in den USA," *BWP* 5/2013, 26-29.

31 German-American Chambers of Commerce, see <[http://www.ahk-usa.com/fileadmin/ahk\\_usa/publikationen/GABO\\_2014/GABO\\_results/GABO\\_2014\\_ppt.pdf](http://www.ahk-usa.com/fileadmin/ahk_usa/publikationen/GABO_2014/GABO_results/GABO_2014_ppt.pdf)>.

32 Ilker Subasi, "An Instructor's Perspective: Volkswagen Academy in Chattanooga, TN," presentation at AICGS conference, 23 May 2014, Washington, DC.

33 Sebastian Patta, "Technical Skills Education: Volkswagen Chattanooga Implements Creative Solutions to Fill Skills Gap," in *Shaping Transatlantic Solutions* (Washington, DC: AICGS, 2013), 29-32.

34 Apprenticeship 2000 consists of a technical training partnership in the Charlotte, NC region designed to train highly skilled workers for high-tech manufacturing through a four-year program, see <<http://apprenticeship2000.com/>> (2 June 2014).

35 Stephen F. Hamilton, *Apprenticeship for Adulthood: Preparing Youth for the Future* (New York: Free Press, 1990).

36 See <<http://www.germany.info/skillsinitiative>> (12 May 2014).



## How Are State and Local Leaders Shaping the Future Workforce?

What kind of workforce does our country need and what career pathways are available to students in Germany and the United States? These questions, among others, were addressed at the first AICGS Transatlantic Dialogue of the States, Cities, and Communities in Washington, DC on May 23. The theme for this year's dialogue was "How Are State and Local Leaders Shaping the Future Workforce?" Support for the dialogue and this Issue Brief was generously provided by the *Transatlantic Program of the Federal Republic of Germany with funds from the European Recovery Program (ERP) of the German Federal Ministry of Economics and Technology (BMW)*. Our goal was to bring leaders from Germany and the United States together to discuss the shared challenge of providing new generations the skills they need to join the workforce.

Germany has three systems of education, one of which is oriented toward university and two which generally lead to faster entry into the workforce. Nearly two-thirds of all German students go through some form of "dual study" program that blends on-the-job experience with classroom instruction. These programs require close coordination between companies, schools, and other stakeholders. Students gain technical knowledge, substantial work experience, and transferable qualifications that they can build upon throughout their career.

The Transatlantic Dialogue offered a unique opportunity to discuss Germany's approach as well as some of the most innovative workforce training programs in the United States. Most of these programs are less than five years old and are generally small scale, but all are actively developing networks of employers, educators, and government committed to sustaining public and private investment in training future generations with the skills needed by industry. Some have borrowed elements from the German model, but all are locally run and supported by U.S. companies, schools, and local government.

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## "Made in Germany" – Produced in America? How Dual Vocational Training Programs Can Help Close the Skills Gap in the United States

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